

AMENDMENTS TO THE CLAIMS

1. (Original) A process of producing an aluminum material having an aluminum nitride (AlN) region on the surface thereof, comprising the steps of:
preparing an aluminum material containing CuAl₂; and
plasma nitriding the aluminum material, to thereby form an AlN region on the surface of the aluminum material.
2. (Original) The process according to Claim 1, further comprising a step of sputtering the aluminum material to remove Al₂O₃ present on the surface of the aluminum material prior to the plasma nitriding step.
3. (Currently amended) The process according to Claim 1-~~or 2~~, wherein the plasma nitriding step is carried out at -167 to 630°C.
4. (Currently amended) The process according to ~~any one of Claim[[s]] 1 to 3~~, wherein the plasma nitriding step comprises a treating step which consists of a step of applying a pulse voltage of -50 V to -50 kV for 0.1 μs to 10 ms followed by a application suspending step having 0.1 μs to 100 ms; or a treating step which comprises a step of applying a continuous D.C. voltage of -50 to -800 V, in an activated first nitriding gas atmosphere.
5. (Original) The process according to Claim 4, wherein the first nitriding gas is a gas made from nitrogen and hydrogen and/or a gas comprising nitrogen gas and hydrogen gas.
6. (Currently amended) The process according to ~~any one of Claim[[s]] 1 to 5~~, wherein AlN is produced at a rate of 0.05 μm/hour or more in the plasma nitriding step.
7. (Currently amended) The process according to ~~any one of Claim[[s]] 2 to 6~~, wherein the sputtering step is carried out using the aluminum material as the negative electrode by applying a D.C. voltage of -50 V to -4000 V in an atmosphere of chemically activated second nitriding gas.

8. (Currently amended) The process according to ~~any one of Claim[[s]] 1 to 7~~, wherein CuAl_2 is contained in the AlN region of the obtained aluminum material.

9. (Original) An aluminum material having an AlN region on the surface thereof, wherein the AlN region has CuAl_2 .

10. (Original) An aluminum material having an AlN region on the surface thereof, wherein CuAl_2 is finely dispersed in the AlN region.

11. (Currently amended) The material according to Claim 9 ~~or 10~~, wherein the AlN region has a thickness of 0.1 μm or more.

12. (Currently amended) The material according to ~~any one of Claim[[s]] 9 to 11~~, wherein the AlN region is grown at a rate of 0.05 $\mu\text{m}/\text{hour}$ or more.

13. (Currently amended) The material according to ~~any one of Claim[[s]] 9 to 12~~, wherein the AlN region has a Vickers hardness (Hv) of 4 GPa or more.

14. (Currently amended) The material according to ~~any one of Claim[[s]] 9 to 13~~, wherein the AlN region has a thermal conductivity of 100 W/mK or more.

15. (Currently amended) The material according to ~~any one of Claim[[s]] 9 to 14~~, wherein the tensile fracture strength between the AlN region and the aluminum material is not less than the tensile fracture strength of the aluminum material and is 15 GPa or less.

16. (New) The material according to Claim 10, wherein the AlN region has a thickness of 0.1 μm or more.

17. (New) The material according to Claim 10, wherein the AlN region is grown at a rate of 0.05 $\mu\text{m}/\text{hour}$ or more.

18. (New) The material according to Claim 10, wherein the AlN region has a Vickers hardness (Hv) of 4 GPa or more.

19. (New) The material according to Claim 10, wherein the AlN region has a thermal conductivity of 100 W/mK or more.

20. (New) The material according to Claim 10, wherein the tensile fracture strength between the AlN region and the aluminum material is not less than the tensile fracture strength of the aluminum material and is 15 GPa or less.

21. (New) The process according to Claim 1, wherein the AlN region has a thickness of 0.1 μm or more.

22. (New) The process according to Claim 1, wherein the AlN region is grown at a rate of 0.05 $\mu\text{m}/\text{hour}$ or more.

23. (New) The process according to Claim 1, wherein the AlN region has a Vickers hardness (Hv) of 4 GPa or more.

24. (New) The process according to Claim 1, wherein the AlN region has a thermal conductivity of 100 W/mK or more.

25. (New) The process according to Claim 1, wherein the tensile fracture strength between the AlN region and the aluminum material is not less than the tensile fracture strength of the aluminum material and is 15 GPa or less.